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Timothy T. Schulte
Storage Technology Corporation
One StorageTek Drive, MS-4309
Louisville, CO 80028-4309

EXAMINER
ALANKO, ANITA KAREN

ART UNIT	PAPER NUMBER
1765	

DATE MAILED: 07/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/690,560	Applicant(s) SVENKESON ET AL.	
	Examiner Anita K Alanko	Art Unit 1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *5/14/03 amdt "b"* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *8 and 12* is/are withdrawn from consideration.

5)☒ Claim(s) *22 and 23* is/are allowed.

6)☒ Claim(s) *1-4, 7, 9-10, 13, 15-17, 20-21* is/are rejected.

7)☒ Claim(s) *5,6,11,14,18 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Claim Rejections - 35 USC § 112

Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is unclear which etching steps are performed simultaneously since multiple etching steps are cited. Are they the etching steps for patterning the first conductive layer (as in claim 21)?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4, 7, 9-10, 13, 15-17 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over IBM Technical Disclosure Bulletin (NN81034466, March 1981) in view of Inaba et al (JP 04-186731A).

IBM TDB discloses a method of forming a conductive device comprising:

- forming a first conductive layer 10A, 11A and a second conductive layer 10B, 11B on first and second sides, respectively of a substrate 10, 11;
- providing the first conductive layer to form a plurality of conductive traces 10A, 11A ("circuitry");
- etching the second conductive layer to define a ground plane 10B, 11B (etched to form circuitry lines, lines 26-29); and

- removing substrate material that is not covered by the at least one mask feature so as to form at least one mechanical alignment feature 10C, 11C (openings for pins 15C or beads 25 as shown in the figure);
- wherein the conductive traces and the ground plane form part of the conductive device.

IBM TDB does not disclose to etch the first conductive layer to form the plurality of conductive traces. IBM TDB does not disclose how the conductive traces are formed other than to broadly cite "sputter" which can encompass etching (first line of the disclosure). However, later in the disclosure IBM TDB teaches that it is conventional to form conductive traces by etching (line 28). It would have been obvious to one with ordinary skill in the art to form the conductive traces by etching in the method of IBM TDB because IBM TDB teaches in a subsequent step that it is a useful technique to form conductive traces by etching.

IBM TDB also does not disclose etching the first conductive layer to form at least one mask feature, nor does IBM TDB disclose how the mechanical alignment features 10 C, 11C are formed.

Inaba teaches a method of forming a conductive device comprising:

- forming a conductive layer 3 on a substrate 1 (the double-sided copper-clad laminate, page 4, line 9 of translation);
- etching the conductive layer to form a plurality of conductive traces 3 (page 5, lines 10-11);
- simultaneously etching the conductive layer to form at least one mask feature 3 (page 5, lines 10-11); and

- removing (by laser ablation) substrate material that is not covered by the at least one mask feature so as to form at least one mechanical alignment feature 5A (page 5, lines 20-23) comprising an aperture.

It would have been obvious to one with ordinary skill in the art to etch the first conductive layer to form conductive traces and a mask feature, and to then use that mask feature to form the mechanical alignment features because Inaba teaches that this is a useful technique for forming conductive devices.

As to claims 2, 10 and 21, Inaba teaches that the etching steps are performed on the first conductive layer simultaneously. It would have been obvious to one with ordinary skill in the art to perform the etching steps simultaneously in the modified method of IBM TDB because Inaba teaches that this is a useful technique for patterning the conductive layer and because it saves time and money to pattern them at the same time rather than at different times.

As to claims 3 and 11, Inaba teaches to remove the substrate with a laser. It would have been obvious to one with ordinary skill in the art to remove the substrate with a laser because Inaba teaches that it is a useful method for forming apertures in substrates.

As to claim 4, IBM TDB discloses to form at least one aperture 10C, 11C.

As to claims 7, 15 and 20, IBM TDB discloses to form at least one aperture 10C, 11C, for which it is obvious to one with ordinary skill in the art to form a slot as needed for the final product.

As to claim 9, it would have been obvious to etch to form multiple ground contacts portions and multiple spaced apart conductive traces in the modified method of IBM TDB since multiple devices are attached to the substrate.

As to claims 13 and 17, IBM TDB does not disclose the shape of the mask, however it would have been obvious to one with ordinary skill in the art to form U-shaped mask features in the modified method of IBM TDB because it is well known to form traces that are U-shaped for which a U-shaped mask is useful.

As to claim 16, Inaba does not disclose to ablate by positioning the laser beam normal to the substrate. Inaba does not disclose any position of the laser beam. Examiner takes official notice that positioning a laser beam normal to the substrate is conventional in the art. It would have been obvious to one with ordinary skill in the art to ablate with the laser beam positioned normal to the substrate because it is conventional in the art.

Allowable Subject Matter

Claims 22-23 are allowed for the reasons cited in paper no. 9.

Claims 5, 6, 11, 14, 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art does not teach or suggest a method for forming a conductive device comprising etching a single conductive layer to form conductive traces and a mask feature for subsequently removing material to form a side edge or tab, as in the context of claim 6.

The closest prior art, IBM TDB, discloses a method with forming, etching and removing steps to form openings or slots, but does not suggest to form side edges or tabs, as in the context

of claim 6. There is no motivation to form side edges or tabs since they are significantly different in structure than apertures or openings.

Response to Amendment

The 102 and 103 rejections over Inaba and Takatsu are withdrawn. Claim 10 is rejected under 35 U.S.C. 112, second paragraph. Claims 1-4, 7, 9, 10, 13, 15-17 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over IBM Technical Disclosure Bulletin (NN81034466, March 1981) in view of Inaba et al (JP 04-186731A). Claims 22-23 are allowed. Claims 5, 6, 11, 14, 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 22-23 are allowed. Claims 8 and 12 are withdrawn from consideration.

Newly cited IBM TDB discloses a method for forming a conductive device with conductive traces and ground planes, and Inaba teaches a useful method to form the conductive traces and mechanical alignment features.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anita K Alanko whose telephone number is 703-305-7708. The examiner can normally be reached on Monday-Wednesday and Friday, 8:00 am-4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin L Utech can be reached on 703-308-3836. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Anita K. Alanko
Anita K Alanko
Primary Examiner
Art Unit 1765

AKA
June 28, 2003